

respectfully traverse this objection. With respect to claims 1-3, applicants have amended the claims to use the term ---axis--, rather than "direction". Since the term "axis" is found in the specification, changing the specification is unnecessary. Applicants also traverse the examiner's assertion of introduction of new matter, as will be explained below. Nevertheless, the phrase "between 0 and about 10 degrees" is not used in the present claims, and it is appropriate to return to the prior form of the specification. Applicants do not concede that new matter is or has been introduced.

37 CFR 1.75 d(1) and MPEP § 608.01(o) are directed towards consistency of terminology. According to MPEP § 608.01(o), "[u]sually the terminology of the original claims follows the nomenclature of the specification, but sometimes in amending or in adding new claims, new terms are introduced that do not appear in the specification. . . . While the applicant is not limited to the nomenclature used in the application as filed, yet, whenever by amendment of his claims, he or she departs therefrom, he or she should make appropriate amendment of the specification so as to have therein clear support or antecedent basis for the new terms appearing in the claims." [Emphasis added.] In claims 1-3, "vertical direction" has been changed to --vertical axis-- and in claims 13-14 there are no terms that are not found in the specification. Objection to the specification on this ground with respect to these claims should be withdrawn.

In contrast, the term "projection", meaning an object that extends beyond some other object, as used in claim 15 has not been previously used in the specification. Consequently, amendment to add this term as an alternative characterization of the ring is appropriate. The forgoing amendment has added this term.

It appears to applicants that the examiner's objection is not to the terms "vertical axis", "10°", "ring", "sensor" or "lens", which are used in the specification, but to the specification's support for the claims. To support amended claims, applicants are, of course, entitled to rely on the specification, claims and drawings as originally filed. MPEP § 2163 gives guidance in this

area:

... An objective standard for determining compliance with the written description requirement is, "does the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed." *In re Gosteli*, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989). Under *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991), to satisfy the written description requirement, an applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention, and that the invention, in that context, is whatever is now claimed. The test for sufficiency of support in a parent application is whether the disclosure of the application relied upon "reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter." *Ralston Purina Co. v. Far-Mar-Co., Inc.*, 772 F.2d 1570, 1575, 227 USPQ 177, 179 (Fed. Cir. 1985) (quoting *In re Kaslow*, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983)). . . . [MPEP § 2163.02]

If applicant amends the claims and points out where and/or how the originally filed disclosure supports the amendment(s), and the examiner finds that the disclosure does not reasonably convey that the inventor had possession of the subject matter of the amendment at the time of the filing of the application, the examiner has the initial burden of presenting evidence or reasoning to explain why persons skilled in the art would not recognize in the disclosure a description of the invention defined by the claims. . . . [MPEP §2163.05(b)]

...With respect to changing numerical range limitations, the analysis must take into account which ranges one skilled in the art would consider inherently supported by the discussion in the original disclosure. In the decision in *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976), the ranges described in the original specification included a range of "25%- 60%" and specific examples of "36%" and "50%." A corresponding new claim limitation to "at least 35%" did not meet the description requirement because the phrase "at least" had no upper limit and caused the claim to read literally on embodiments outside the "25% to 60%" range, however a limitation to "between 35%

and 60%" did meet the description requirement. . . .[MPEP 2163.05(c)]

With respect to claims 1-3, applicants originally claimed an apparatus with "upwardly pointing proximity sensor" or "sensors". The examiner interpreted this as disclosing a sensor angled as shown in Jonsson '912, that is, a range extending well beyond 45° degrees from vertical. A sensor pointing directly up is clearly upwardly pointing, that is, zero degrees or the vertical axis is clearly within and supported by the claims as originally filed. The specific example of 10° was given in the specification. The angle was further illustrated from a vertical axis in the drawings. The question, therefore, is whether the range defined by "an angle that deviates from a vertical axis by not more than about 10°" is permissible. Because the claimed range falls within the range originally claimed (and thus disclosed) and is limited by a specific example, the claim is permissible under In re Wertheim.

With respect to claims 13-15, the specification stated that:

"Another important aspect of the present invention is illustrated in Figure 4 as ring 40. . . . The ring is further milled out in a manner that allows dirt, water, debris, and the like to flow out of the ring and off of the lens' cover. . . . The interior surface of ring 40 is circular and has an internal diameter sufficient to avoid obstructing the light emitted by the LED emitter and the light received by the receivers or detectors. . . . In the preferred embodiment, ring 40 is of a height of 3/8" or .375" which serves to provide sufficient infrared light travel path such that receiver R2 (in Figure 6) can detect the presence of a person or object even when a clerk is in contact with the sensor 29. Sensor ring 40 thereby serves to prevent a clerk or an object of the clerk's clothing from coming in direct contact with the sensor 29, in a manner that completely eliminates receivers R2 and R1 from receiving any light emitted by emitter E." [Specification as filed, page 9.]

Figure 6 clearly illustrates that a distance or height away from the lens 53 is necessary for the radiation to bounce back into the lens 54 of the receiver 52. The ring prevents the employee's clothing from coming in direct contact with the sensor 29. The sensors 29 are described with reference to T30 series proximity sensors as having an LED emitter, two light detectors and accompanying receiver lens and emitter lens integral in a single package. The person of ordinary skill is therefore instructed that a structure (ring) should be provided which extends beyond an upwardly pointing lens far enough to prevent clothing from obstructing the operation of the proximity sensor.

It will be noted that the quoted portion of the specification first states that the ring provides a sufficient light path even when an employee is in contact with the sensor and then states that the ring does this by preventing the employee or the employee's clothing from coming in direct contact with the sensor. When a person approaches the sensor, the person may contact the sensor indirectly through the ring. Without the ring, the person may come in direct contact with the sensor, covering the lens, and preventing sensing. To avoid any confusion, applicants had heretofore changed the first use of "sensor" to --ring--. Applicants do not rely on this clarification to support the claims.

#### Claims Rejection - 35 USC §112

In claims 1 and 3, the superfluous word "sensors" has been removed. Claim 10 is considered duplicative of claim 3 and has therefore been canceled. In claim 12, "the window" has been changed to --the fast-food service window--. In claim 15, "sufficient inhibit objects" has been changed to --sufficient to inhibit objects--. It is believed that each of the examiner's concerns under 35 USC § 112 has been addressed and that this grounds for rejection of the claims should be withdrawn.

Claims Rejection -- 35 USC §103

The Examiner has rejected claims 1-5, 7, 9, 10, 12 and 16 under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art of figure 5 in view of Jonsson. Further, the examiner has rejected claims 13-15 under 35 U.S.C. 103(a) over the admitted prior art of figure 5 in view of Jonsson and further in view of Hagenbrook.

With respect to claims 13-15, the amendment to claim 1 defines the sensor in such a way as to exclude the examiner's reliance on Hagenbook, even if the light bulb 93 were considered a "sensor". The examiner argues that a ring that rises above a portion of a sensor (i.e., that part of the sensor is below the ring but part is not) meets the limitation that the ring must rise "above the sensor". This does not seem to give the claim language the benefit of ordinary meaning. Applicants teach that the extended ring prevents the clothing or body of a person from disabling the function of the proximity sensors. The examiner has not identified this function in the art. Instead the examiner states that rings more accurately direct sensor beams. There is no teaching in Hagenbook or the art that rings accurately direct sensor beams that would lead one to extend the rings beyond the sensor. Applicants respectfully request that the examiner identify such a teaching in the art. Lenses may direct beams, but the rings of Hagenbook are superfluous to the function of the lens. Claim 13 should be allowed. The examiner has failed to address or provide reasoning directed specifically to claims 14 and 15. These claims should be allowed.

With respect to claims 1-3, 7, 9, 12 and 16, it is believed that the examiner concedes that the claims do not read on the combination of references. An additional modification of the art is necessary, which deficiency the examiner supplies by argument. The examiner argues that one of ordinary skill would

focus a sensor "such that the torso of a person approaching the window is not detected by the sensor." [Paper 32, page 5, line 4.] This principle cannot be found in any of the references and can only be found in the teachings of this application. This is an impermissible argument. The prior art teaches one to detect the body of the person approaching an automatic door or window. Once the body has been detected, there is no motivation in the prior art to continue to search for a configuration where the body is not detected.

Moreover, applicants have provided evidence and affidavits in support of the non-obviousness of the invention. Nevertheless, the examiner has failed to address the evidence presented by the applicants or to consider the affidavits presented. The examiner has failed to provide a counter affidavit or other evidence, despite applicants' request for such evidence, should the examiner desire to rely thereon. The examiner has failed to make a *prima facie* case for the rejection of the claims.

In view of the above remarks and amendments, it is believed that the application, upon entry of the requested amendments, will be in condition for allowance and the Examiner's prompt action in accordance therewith is respectfully requested. If the examiner feels that a telephone conference would be helpful in advancing the prosecution of this case, the undersigned attorney urges the examiner to call him.

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## Appendix of Amended Paragraphs (With Amendments Shown)

Referring now to Figures 4 and 6, one of the upwardly focused proximity sensors 29 is illustrated on the sensor mount 30 in cutaway view. The proximity sensors 29 are those such as manufactured by Banner Engineering Corporation of Minneapolis, Minnesota and identified by Banner Engineering Corporation as its T30 Series of Fixed-Field sensors. Each of the T30 Series proximity detectors used in the preferred embodiment of the present invention have an LED emitter, two light detectors or receivers, accompanying receiver lens and emitter lens integral in a single detector. Each of the detectors is cylindrical in configuration. In the preferred embodiment an infrared fixed-field diffused sensing arrangement is used. With the T30 sensors used in a fixed-field diffused sensing arrangement, each sensor has a single LED emitter 50 and two receivers (near receiver or detector 52 and far receiver or detector 51) positioned slightly off center of the lens focal point. This arrangement allows the light to exit the emitter lens 53 at a slight angle. The receivers in the sensor are precisely placed behind the receiver lenses 54 for the proper cutoff distance. As shown in Figure 6, an object is sensed if the amount of light at near receiver or detector 52 (R1) is greater than the amount of light at far receiver or detector 51 (R2). In the preferred embodiment, the proximity sensors are mounted askew of the horizontal plane (illustrated by line 35) in a manner that the centerline 36 of proximity sensor 29 is slightly askew from the vertical axis (illustrated as line 37) by the angle  $\alpha$  [that is, between 0 and about 10 degrees]. In the preferred embodiment the angle  $\alpha$  is approximately 10 degrees. An angle  $\alpha$  of approximately 10 degrees has been found to reliably detect an employee wishing to service a customer as the employee reaches across the horizontal service plane proximate to the access window (just prior to servicing a customer), that is as the employee extends an arm over the sensor. The employee's arm is detected before the employee's torso. This angle  $\alpha$  has been found to be such that the proximity sensors substantially reject any false signals, from passing employees who do not intend to service a customer, thereby virtually eliminating

the inadvertent opening of the access window. In an attempt to further avoid any false signals a 0.2 second time delay is designed into the detection circuit. As such the time delay requires the presence of a person in the proximity of the sensors for at least 0.2 of a second in order to operate properly to open the window. Similarly, a person must vacate the sensor proximity for at least 0.2 seconds for the window circuit to close the window. The angle  $\alpha$  of approximately 10 degrees has also been found to be sufficient to avoid a ceiling panel or other ceiling surface from reflecting light emitted by the LED back to receivers or detectors R1 or in a manner to falsely trigger the window to open.

Another important aspect of the present invention is illustrated in Figure 4 as ring 40. Ring 40 is manufactured from General Electric Valox (a thermoplastic material) with the outward surface of the ring shaped in a hexagonal shape. The ring is further milled out in a manner that allows dirt, water, debris, and the like to flow out of the ring and off of the lens' cover. The ring 40 is used as a mounting ring for the proximity sensor 29. The interior surface of ring 40 is circular and has an internal diameter sufficient to avoid obstructing the light emitted by the LED emitter and the light received by the receivers or detectors. In the preferred embodiment, the interior surface of ring 40 is threaded onto the threaded barrel of proximity sensor 29. In the preferred embodiment, ring 40 is a projection of a height of 3/8" or .375" which serves to provide sufficient infrared light travel path such that receiver R2 (in Figure 6) can detect the presence of a person or object even is when an employee is in contact with the ring 40. Sensor ring 40 thereby serves to prevent an employee or an object of the employee's clothing from coming in direct contact with the sensor 29, which includes a lens 53, in a manner that completely eliminates receivers R2 and R1 from receiving any light emitted by emitter E.

Appendix of Claims (With Amendments Shown)

1. (Thrice amended) A fast-food service window comprising:
  - a window assembly with at least one movable window member;
  - a window operator assembly mechanically coupled to the movable window member;
  - an upwardly focused proximity sensor [sensors] comprising an emitter emitting radiation and a receiver receiving radiation from the emitter, said radiation being reflected from an object being sensed, said sensor being focused upward at an angle that deviates from a vertical direction by not more than about 10° and functionally coupled to the window operator assembly and directed to detect an extended arm of a person over said proximity sensor;
  - wherein the movable window member opens whenever said extended arm of said person is sensed by said proximity sensor.
2. (Thrice amended) A fast-food service window comprising:
  - a window assembly with at least one movable window member;
  - a window operator assembly mechanically coupled to the movable window member;
  - a plurality of upwardly focused proximity sensors, each of said sensors comprising an emitter emitting radiation and a receiver receiving radiation from the emitter, said received radiation being reflected from an object being sensed, said sensors being focused upward at an angle that deviates from a vertical [direction] axis by not more than about 10° and functionally coupled to the window assembly and directed to detect an extended arm of a person over at least one of said proximity sensors ;
  - wherein the movable window member opens whenever said extended arm of said person is sensed by said proximity sensors.
3. (Thrice amended) A fast-food service window comprising:
  - a window assembly with at least one movable window member;
  - a window operator assembly mechanically coupled to the movable

window member;

a upwardly focused infrared proximity sensor comprising an emitter emitting radiation and a receiver receiving radiation from the emitter, said received radiation being reflected from an object being sensed, said sensor being [sensors] focused upward at an angle that deviates from a vertical [direction] axis by not more than about 10° and electrically coupled to the window operator assembly and directed to detect an extended arm of a person over said proximity sensor;

wherein the movable window member opens whenever said extended arm of said person is sensed by said infrared proximity sensor.

12. [Amended] The fast-food service window set forth in claim 1 wherein the proximity sensor is directed such that the torso of a person approaching the fast-food service window is not detected by the proximity sensor before said extended arm is detected.